

Claims

We claim:

- 1 1. A method for processing a compressed input video, comprising:
 - 2 decoding the compressed input video to produce an interlaced picture,
 - 3 and macroblock coding information of the input video, the interlaced picture
 - 4 having a first spatial resolution, and a top-field and a bottom-field; and
 - 5 filtering adaptively the top-field and the bottom-field of the interlaced
 - 6 picture according to the macroblock coding information to produce a
 - 7 progressive picture with a second spatial resolution less than the first spatial
 - 8 resolution.
- 1 2. The method of claim 1, in which the macroblock coding information
- 2 includes a macroblock coding type and a macroblock transform type.
- 1 3. The method of claim 2, in which the macroblock coding type includes
- 2 intra-coding and inter-coding.
- 1 4. The method of claim 2, in which the macroblock transform type includes a
- 2 frame-based transform and a field-based transform.
- 1 5. The method of claim 2, in which the macroblock coding information
- 2 further includes a macroblock motion type and corresponding motion vector
- 3 when the macroblock coding type is inter-coding.

- 1 6. The method of claim 5, in which the macroblock motion type includes
- 2 frame-based and field-based.

- 1 7. The method of claim 1, in which the filtering includes frame-based filtering
- 2 and field-based filtering.

- 1 8. The method of claim 7, in which the filtering is field-based when the
- 2 macroblock coding type is inter-coding and the macroblock motion type is
- 3 field-based.

- 1 9. The method of claim 7, in which the filtering is field-based when the
- 2 macroblock coding type is inter-coding, the macroblock motion type is
- 3 frame-based, and the absolute value of motion vectors corresponding to the
- 4 macroblock are greater than a threshold.

- 1 10. The method of claim 9, in which the threshold equals zero.

- 1 11. The method of claim 9, in which the threshold is greater than zero.

- 1 12. The method of claim 7, in which the filtering is field-based when the
- 2 macroblock coding type is intra-coding and the macroblock transform type
- 3 is field-based.

- 1 13. The method of claim 7, in which the filtering is frame-based when the
- 2 macroblock coding type is intra-coding and the macroblock transform type
- 3 is frame-based.

1 14. The method of claim 7, in which the filtering is frame-based when the
2 macroblock coding type is inter-coding and the macroblock motion type is
3 frame-based, and the absolute value of motion vectors corresponding to the
4 macroblock are less than or equal to the threshold.

1 15. The method of claim 7, in which the filtering is frame-based and
2 operates on input samples from the top-field and bottom-field of the
3 interlaced picture.

1 16. The method of claim 7, in which the filtering is field-based and operates
2 on input samples from the top-field or bottom-field.

1 17. The method of claim 7, in which the filtering is field-based and operates
2 on input samples from the bottom-field.

1 18. The method of claim 1, further comprising:
2 encoding the progressive picture to an output video.

1 19. The method of claim 1, further comprising:
2 rendering the progressive picture on a display device.

1 20. A system for processing a compressed input video, comprising:
2 means for decoding the compressed input video to produce an
3 interlaced picture, and macroblock coding information of the input video, the
4 interlaced picture having a first spatial resolution, and a top-field and a
5 bottom-field; and

6 means for filtering, adaptively, the top-field and the bottom-field of the
7 interlaced picture according to the macroblock coding information to produce
8 a progressive picture with a second spatial resolution less than the first spatial
9 resolution.